REMARKS

Applicants provide the following additional remarks in view of the current amended claims. Applicants submit that both the embedding process and the detecting process disclosed in Miyahara et al. are different from the embedding process and the detecting process according to the present invention and recited in the claims. The following is being provided to help the Examiner understand the differences between Miyahara et al. and the limitations in the claims of the present application using terms for areas as detailed in Applicant's figures.

Regarding the embedding process, Miyahara et al. discloses the image data being divided into <u>N-number G areas</u>. <u>1-bit information</u> is assigned to each area G. If a bit value of kth bit ($1 \leq k \leq N$) to be embedded in area Gk is 1, a watermark pattern is embedded. If a bit value is 0, a watermark pattern is not embedded (the original image remains unchanged). The <u>area Gk</u> in which a watermark pattern is not embedded (<u>area whose kth bit is 0</u>) is <u>dependent on the bit information to be embedded</u> and changes according to the bit information to be embedded. In contrast, according to the present invention, the image data is divided into <u>areas G as many as possible</u>. <u>N-bit information</u> is embedded in each area G. When embedding in the area G, a watermark pattern, according to the kth bit value <u>(1 or 0)</u> is embedded in Tk area which is kth area ($1 \leq k \leq N$). A watermark pattern is not embedded in H area. The areas in which any watermark patterns are not embedded are arranged at regular intervals, <u>regardless of the bit information to be embedded</u>, since area G is repeatedly arranged in all over the image data. Thus, the shift amount of the image data can be detected at the time of detection.

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Regarding the detecting method, Miyahara et al. discloses correlation values between a watermark pattern and the original image data being obtained as to each of the N areas, and the bit value of 1 or 0 is detected <u>according to presence or absence of the watermark pattern</u>. If the watermark pattern is shifted due to image data processing, the watermark <u>cannot be detected</u>. In contrast, according to the present invention, the area in which a watermark pattern is not embedded (area H) is detected <u>by performing the detection process with the detecting pattern noted above regarding the embedding</u>. Based on the area, the difference between the image data in which a watermark pattern is embedded and the watermark pattern (the shift amount of the image data) is detected. In this way, accurate location of Tk in each area G can be recognized and the watermark pattern information which is embedded in the area Tk can be extracted. Namely, <u>even if the watermark pattern is shifted</u> due to image data processing, <u>the watermark pattern information can be detected</u>.

Therefore, regarding the claims of the present application, Applicants submit that Miyahara et al. does not disclose or suggest the limitations in the combination of each of the claims of, <u>inter alia</u>, embedding digital watermark information including corresponding to each of the T_1 - T_n whose pixel values are changed to each of the digital watermark information b_1 - b_n and changing the pixel value of each area T according to a bit value, or locating the area G repeatedly, wherein the location of the area G thus located repeatedly is not dependent on the digital watermark information. Miyahara et al. discloses the pixel values of the whole area S being <u>changed according to a predetermined pattern regardless of the bit value</u>. In contrast, according to the present invention, if B_1 is 1, the pixel value of the whole T_1

are increased and if B_1 is 0, the pixel value of the whole T_1 are decreased, i.e., the pixel value of each area T is changed according to the bit value. Moreover, Miyahara et al. discloses that if the bit value is 1, area G is located, and if the bit value is 0, the original image remains unchanged without using the area G. Therefore, the existence or absence of the area G determines 1 or 0 of the bit value. In contrast, according to the present invention, the deviation of an image can be detected based on the area H whose image value is not changed (i.e., no information is embedded).

Accordingly, Applicants submit that Miyahara et al. does not disclose or suggest the limitations in the combination of each of the claims of the present application. Applicants respectfully request that all rejections be withdrawn and that claims 1-26 be allowed.

In view of the foregoing amendments and remarks, Applicants submit that claims 1-26 are now in condition for allowance. Accordingly, early allowance of such claims is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (referencing attorney docket no. 566.38616X00).

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP
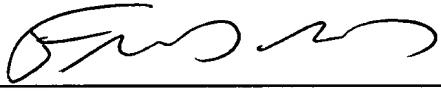
Frederick D. Bailey
Registration No. 42,282

FDB/sdb
(703) 312-6600

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